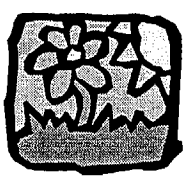
2. Water Use Efficiency Program Description



2. Water Use Efficiency Program Description

The CALFED Water Use Efficiency Program is one of the cornerstones of CALFED's water management strategy. The CALFED policy toward water use efficiency is a reflection of the State's legal requirements for reasonable and beneficial use of water: existing water supplies must be used efficiently, and any new water supplies that are developed by the Program must be used efficiently as well.

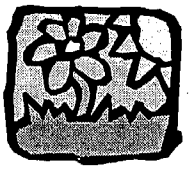
Efficiency has several definitions. A traditional definition of physical efficiency is the ratio of water consumed to water applied. Efficiency also can be defined in economic terms: deriving the greatest economic output from a given input (such as a unit of water). For the purpose of developing and implementing a Water Use Efficiency Program, CALFED has defined efficiency more broadly: **The Water Use Efficiency Program will assure high efficiency through programs that benefit local water users, districts, regions and the state.** This includes all benefits that are cost-effective at the state-wide level.

2.1 PROGRAM OBJECTIVES

The ultimate goal of the CALFED Water Use Efficiency Program is to develop a set of programs and assurances that contributes to CALFED goals and objectives, has broad stakeholder acceptance, fosters efficient water use, and helps support a sustainable economy and ecosystem.

The Water Use Efficiency Program also must adhere to CALFED's solution principles, which include:

- Reduce conflicts in the system
- Be equitable
- Be affordable
- Be durable
- Be implementable
- Pose no significant redirected impacts



To achieve these fundamental goals, the Water Use Efficiency Program has the following objectives:

- ***Reduce existing irrecoverable losses*** - By reducing losses currently unavailable for reuse (because they flow to a salt sink, inaccessible or degraded aquifer, or the atmosphere), CALFED will increase the overall volume of useable water.

- ***Achieve multiple benefits*** - By reducing losses that currently return to the water system (either as groundwater recharge, river accretion, or direct reuse) CALFED can achieve multiple benefits, such as making water available for irrigation or in-stream flows during dry periods, improving water quality, decreasing diversion impacts, and improving flow between the point of diversion and the point of reentry.

- ***Preserve local flexibility*** - Stakeholders have stressed the advantages of maintaining the flexibility of implementing water use management and efficiency improvements at the local level while exploring regional programs to maximize benefits. Past water conservation and water recycling programs have demonstrated that local water users and suppliers can access virtually unlimited creativity and ingenuity in improving water use efficiency. CALFED's approach provides necessary assurances of improved efficiency while maintaining the flexibility to tailor implementation to local conditions.

- ***Use incentive-based actions over regulatory actions*** - CALFED's approach to water use efficiency emphasizes incentives to encourage efficient use. Principal incentives include planning, technical, and financing assistance to local water users and suppliers. Existing regulatory processes provide necessary assurances of efficient use as well as mitigation for third-party impacts that may result from incentive-based approaches.

- ***Build on existing water use efficiency programs*** - Several existing efforts are striving to increase water use efficiency. The California Urban Water Conservation Council and Agricultural Water Management Council are stakeholder organizations devoted to urban and agricultural water management, respectively. Similarly, CALFED agencies, such as DWR, Reclamation, and the National Resource Conservation Service, have ongoing water management programs. SWRCB, DWR, and Reclamation also have ongoing water recycling programs. CALFED will enhance rather than attempt to recreate the positive momentum established by these existing programs.

- ***Provide assurance of high water use efficiency*** - Water Use Efficiency assurances are structured to ensure that urban and agricultural water users and suppliers implement appropriate efficiency measures (please refer to section 2.3.2 for a more complete discussion). These assurances include limiting access to CALFED benefits and conditions on new storage facilities. Additional consequences of inadequate water use efficiency are being considered through the urban certification process (Section 2.2.2) and the Agricultural Strategic Plan (Section 2.2.1).

2.2 PROGRAM APPROACH

The physical scope of Water Use Efficiency Program actions is limited to improvements that can affect Bay-Delta water supplies (surface and subsurface) from points of local diversion for beneficial use to points of local return to the receiving water. This scope focuses on opportunities that can be implemented at the local water supplier and end-user level. For example, changing the timing of diversion, reducing demand through conservation and recycling, or improving the quality of a return flow are actions related to beneficial use of local diversions and can be implemented at the local, regional and end-user levels.

The Water Use Efficiency Program addresses four categories: urban, agricultural, and managed wetlands (for example, wildlife refuges) efficiency and water recycling. The first three elements correspond to traditional water use sectors of urban, agriculture, and the environment. Some differences in the water use efficiency approach for each sector may be appropriate because of differences in water rights, methods of water use, and potential for reuse. Water recycling will be treated separately because water recycling traditionally has been approached separately from water conservation, and often is the responsibility of different agencies.

WATER USE EFFICIENCY: THINK GLOBALLY, ACT LOCALLY

The Water Use Efficiency Program is based on the recognition that although efficiency measures are implemented locally and regionally, the benefits of water use efficiency accrue at local, regional, and state-wide levels. The role of CALFED agencies in water use efficiency will be to offer support and incentives through expanded programs that will provide planning, technical, and financial assistance. CALFED agencies also will support institutional arrangements that give local water suppliers an opportunity to demonstrate their implementation of cost-effective efficiency measures. Some potential water use efficiency benefits, such as water quality improvements, may be regional or statewide rather than local. In these situations, CALFED planning and cost-share support may be particularly effective.

2.2.1 AGRICULTURAL WATER USE EFFICIENCY APPROACH

In the agricultural sector, the nature and extent of benefits from improvements in local water use management and efficiency differ from the perspective of a field, farm, irrigation district, or basin. As we broaden our perspective to include environmental and water quality benefits, additional measures become feasible. The CALFED agricultural water use efficiency approach is designed to identify diverse opportunities for local water management and efficiency improvements, and increase the benefits that can be derived from a unit of water. The program will look to water management techniques that increase the effectiveness of water use management and efficiency at the field, farm, district, and basin level where these are appropriate.

The 3/16/98 Draft Programmatic EIS/EIR proposed that an existing group, the AWMC that was established pursuant to Assembly Bill (AB) 3616, play a pivotal role in ensuring efficient water use in the agricultural sector. Concerns from environmental representatives about this proposal, and concerns from virtually all other sectors about the general approach to agricultural water use efficiency, led to the formation of (1) a stakeholder-agency advisory focus group to evaluate and propose improvements to the program; (2) a scientific review panel to review the technical basis for the program and proposals included in the Programmatic EIS/EIR; and (3) Agricultural Water Use Efficiency Steering Committee to provide advice through the Strategic Plan. The focus group met several times in late 1998. CALFED has incorporated many of the focus group's recommendations into the Revised Draft Programmatic EIS/EIR (although this document does not necessarily reflect the views of all focus group members). Before the CALFED Revised Draft Programmatic EIS/EIR is finalized, CALFED will incorporate comments received from these three groups, as well as from the public, and will proceed with program refinement in an open public process.

The agricultural component of the Water Use Efficiency Program is structured around four broad elements. These mutually supporting elements are presented below as a package:

1. ***Incentives*** - CALFED is developing, in consultation with the AWMC, a program of technical and financial incentives for the implementation of water use efficiency measures in the agricultural sector.

   CALFED will provide technical assistance and financial incentives in the form of loans for actions or activities that have been identified as cost effective for local water suppliers in water management plans approved by the AWMC. The AWMC was created by the Agricultural MOU, an agreement between signatory agricultural water suppliers and signatory environmental organizations. It was developed by an advisory committee formed pursuant to State legislation in 1990. The AWMC is sometimes referred to as the "AB 3616 committee" as a reference to the original, enabling legislation. The Agricultural MOU is a commitment by signatory water suppliers to prepare and implement water management plans. The AWMC will review and either endorse or withhold endorsement of each water management plan. Signatory water suppliers also agree to submit annual implementation progress reports to the AWMC.

   The MOU calls for water suppliers to implement certain Efficient Water Management Practices (EWMPs), and to evaluate other EWMPs according to a specified analysis method, implementing those found to be feasible and cost-effective from the suppliers perspective.

   In addition to technical assistance, CALFED will provide financial incentives in the form of grants for water use efficiency measures that are cost-effective at the state-wide level, but not cost-effective locally. These additional agricultural water management measures will help CALFED achieve multiple benefits related to water quality, timing, and in-stream flows, as well as reducing irrecoverable losses. The planning process in the Agricultural MOU includes a net benefit analysis which, among other things, will help suppliers identify measures that provide environmental benefits. The ongoing Agricultural Water Use Efficiency strategic planning process is identifying additional opportunities for agricultural water management that will provide environmental benefits.

   Many of these "extra" benefits (beyond those expected through AWMC efforts) will not be locally cost-effective and, as such, will be funded through CALFED grants.

2. ***A locally tailored program that incorporates the work of the AWMC*** - As stated above, the agricultural water use efficiency strategic planning process will incorporate the work of the AWMC to foster locally cost-effective measures and seek to identify additional appropriate water management measures. Locally tailored programs are effective because they build on the experience and creativity of individuals who are most familiar with local conditions.

3. ***Quantifiable objectives*** - Quantifiable objectives are objectives for improvements in water management that can be measured or otherwise tracked to ensure that such improvements occur. Quantifiable objectives will include outcome indicators based on actual water use. Quantifiable objectives must be related to the following four agricultural water use objectives: (1) manage rerouted flows; (2) alter applied water patterns; (3) reduce irrecoverable losses; and (4) reduce shortage impacts. These agricultural water use objectives are linked to CALFED's goals and Solution Principles. Quantifiable objectives are expected to vary by region and will be developed prior to the Record of Decision (ROD).

4. *Assurances* - The assurance mechanisms are structured to ensure that water users implement appropriate efficiency measures. Please refer to Section 2.3.2, "Assurances," later in this section.

Before finalizing the CALFED Program, CALFED will complete the Strategic Plan for Agricultural Water User Efficiency. The purpose of the plan is to articulate a prioritized, strategic, aggressive program for the achievement of efficient water management for all purposes throughout the many different agricultural regions of the state. The plan will focus in detail on specified regions, basins, and districts on a prioritized basis.

The plan is currently being prepared, under staff direction, by a multi-disciplinary technical team which includes water conservation, water quality, aquatic biology, irrigation engineering, local operations expertise, and other regional representatives. This team composition was designed to provide the needed technical expertise and linkage to readily available data and local conditions.

On a region-by-region basis, the technical team will determine the following components which are consistent with the Agricultural Water Use Efficiency Objectives:

- Targeted Benefits: Targeted benefits define qualitatively the intended changes in conditions. These changes recognize potential gains at both the CALFED and local levels.

- Quantifiable Objectives: Quantifiable objectives articulate the specific outcome that must be achieved to produce a targeted benefit. These objectives are to be expressed in a quantifiable form.

- Targeted Flow Path change: A flow path defines or describes the route by which water flows. A targeted flow path change identifies the specific routes which, if redirected, would contribute to the achievement of a quantifiable objective.

- Performance Indicator: An indicator is a parameter that measures progress towards the achievement of quantifiable objectives. Indicators are quantifiable, whenever possible. In some cases, performance indicators may be expressed identically to quantifiable objectives.

- Regional Implementation Strategy: A regional implementation strategy identifies a set of specific actions a regional entity will take to achieve the stated quantifiable objectives. In this case, a regional entity may be an individual actor (associations and groups, irrigation districts, water agencies, RCDs and counties) or a consortium of actors. The regional implementation strategy includes a research and evaluation component.

- Monitoring and Performance Assessment: This action describes the steps that will be taken to monitor and assess its progress towards achieving stated quantifiable objectives through the regional implementation strategy. The results of the performance assessment will be expressed in a concise report made available to CALFED and the region.

- Refinement and Revision: In this action, the results of the Monitoring and Performance Assessment will be considered and used to propose changes to quantifiable objectives, targeted flow path change, indicators and regional implementation strategy. The revision process may also lead to changes in the process of monitoring and performance assessment.

The strategic plan is currently being developed through a facilitated process that includes CALFED agencies, AWMC stakeholders, and the technical team. The strategic plan is scheduled for completion in early 2000.

2.2.2 URBAN WATER USE EFFICIENCY APPROACH

The urban areas of California use over 7 MAF of water each year. Water diverted from the Bay-Delta system currently satisfies much of this demand. Expanding urban populations will create additional needs for reliable water supplies, and will place added pressure on the Bay-Delta system. Through a variety of programs CALFED will help urban areas meet growing water demands while ensuring Bay-Delta ecosystem integrity. Increasing water use efficiency in urban areas will be a fundamental part of this effort.

Urban areas have already made significant advancement towards water use efficiency goals under the 1991 Memorandum of Understanding Regarding Urban Water Conservation in California (Urban MOU). However, the rate and extent of this progress appears to be below its full potential. The CALFED Program will extend the progress already made by (1) providing financial and technical support for urban water use efficiency programs and (2) instituting a process to certify water supplier compliance with the Urban MOU.
In the first public draft of the Water Use Efficiency Program Plan, CALFED proposed that the requirements of the Urban MOU constituted appropriate demonstration that urban water suppliers had considered urban water conservation measures. Water suppliers signing the Urban MOU agree to develop and implement comprehensive conservation Best Management Practices (BMPs) using sound economic criteria. The Urban MOU identifies 14 water conservation Best Management Practices (BMPs) that urban water supplier signatories agree to implement over ten years if locally cost-effective. CALFED proposed that the organization created by the Urban MOU to oversee implementation of the BMPs, the California Urban Water Conservation Council (CUWCC), certify water suppliers' compliance with the terms of the MOU.

CUWCC membership is divided into two voting groups and one non-voting group -- urban water suppliers and environmental interest groups comprise the two voting groups and other interested parties comprise the third, non-voting group. Membership requirements for each group are contained in the CUWCC's bylaws. Since 1991 more than 150 urban water suppliers across California, serving over 75% of the state's population, have signed the Urban MOU. The Department of Water Resources, United States Bureau of Reclamation, State Water Resources Control Board, and California Public Utilities Commission are all signatories to the Urban MOU.

The CUWCC's organizational and decision-making structure is uniquely suited to advance consensus agreements regarding urban water use efficiency between a diverse set of stakeholders. To be adopted, CUWCC decisions require majority approval by each voting group. This requirement has fostered a culture of discussion and compromise within the CUWCC, and has opened important channels of communication between interest groups with competing interests. Indeed, the formal mission of the CUWCC is to increase efficient water use statewide through partnerships among urban water agencies, public interest organizations, and private entities, and to integrate urban water conservation Best Management Practices into the planning and management of California's water resources. Towards this end, the CUWCC has been a highly effective and dynamic organization. The CUWCC is actively preparing for its potential certification role. In the previous year it has increased its staffing and budget levels, adopted a three-year strategic plan anticipating certification, and hired a full-time executive director. CALFED is supporting this effort through financial and staff assistance, pilot projects, and research funding.

Urban MOU certification would formalize the MOU process by requiring suitable demonstration that either BMP implementation is on schedule per the Urban MOU, or the BMP is not locally cost-effective to implement. Access to certain CALFED benefits would be made contingent upon certification of a supplier's compliance with the Urban MOU. The CALFED draft proposal closely follows earlier proposals put forward by stakeholders, as well as input received from public workshops, comments on the draft EIS/EIR, and an

informal environmental and urban water supplier workgroup about the participation criteria, administrative structure, and requirements for certification of MOU compliance.

Many urban water suppliers working on the urban water conservation certification frameworks have, from the outset, stated that their support for any urban conservation measures beyond those contained in the urban MOU is conditional on the adoption of a mutually acceptable CALFED solution. Environmental stakeholders, on the other hand, view certification as an important assurance to an overall CALFED solution.

Except where noted, stakeholders working with CALFED on Urban MOU certification generally agree on the following certification proposal features:
Water Supplier Participation. The certification program will apply only to urban water suppliers directly or indirectly deriving supply from the Bay-Delta system. Certification will apply only to urban water suppliers with 3,000 or more connections, or delivering 3,000 or more acre-feet annually. Discussion regarding what constitutes a hydrologic connection to the Bay-Delta system is on-going. This issue will require resolution prior to implementation of any Urban MOU certification proposal.

Certification Reviews. Review of certification status would occur not less than every two years for wholesale water suppliers and retail water suppliers with more than 10,000 connections and not less than every five years for retail water suppliers with between 3,000 and 10,000 connections. Noncompliance review findings could result in more frequent reviews. Conversely, sustained compliance could result in less frequent reviews.

MOU Compliance Standard. Water suppliers implementing all cost-effective BMPs in accordance with Exhibit 1 of the MOU, and substantiating any BMP exemptions in accordance with Exhibit 3 and Sections 4.4 to 4.6 of the MOU will receive certification. CALFED is currently working with the CUWCC and interested stakeholders to put in place formal review processes and administrative structures.

Environmental Costs and Benefits. Per Exhibit 3 of the MOU, compliance would require cost-effectiveness exemptions to address and quantify environmental costs and benefits for the Total and Water Supplier cost-effectiveness tests. However, certification decisions could not be challenged on the basis of these valuations unless the CUWCC or CALFED developed agreed-to methods for quantifying or creating proxy values for environmental benefits and costs. If the CUWCC has not adopted agreed-to methods within the first five years of the program, then the CALFED Commission or its equivalent will develop and adopt such methods and standards for the reasonable consideration and quantification of environmental and other non-market costs and benefits as it deems necessary for the purposes of the Urban MOU by the end of the sixth program year. Through its strategic planning process the CUWCC has assigned a high-priority to developing credible methods and tools for estimating costs and benefits within the next three years.

CVPIA Compliance. Currently, CALFED is proposing that urban CVP contractors with approved CVPIA conservation plan updates would receive MOU certification without undergoing CUWCC review. CALFED, USBR, and the CUWCC would need to work to ensure the consistency of MOU and CVPIA urban water use efficiency standards and review requirements. Some urban and environmental stakeholders have expressed concern that this provision is likely to result in qualitatively different review standards between CVP and non-CVP urban suppliers, and are recommending that CVP contractors should undergo CUWCC review.

BMP Implementation Variances. Compliance would not require all water suppliers to adopt a single implementation method for a BMP. The "At Least As Effective As" provisions of Exhibit 1 to the Urban MOU recognize that "it is likely that as the [MOU] process moves forward, water suppliers will find new implementation methods even more effective than those described [in Exhibit 1]. Any implementation

method used should be at least as effective as the methods described [in Exhibit 1]." Water suppliers using methods to implement one or more BMPs different from the methods described in Exhibit 1 would be able to obtain pre-approval of the methods from the CUWCC, though this would not be required. Not obtaining pre-approval, however, would risk a negative "at least as effective as" finding during compliance review. The CUWCC is currently developing a pre-approval procedure.

Certification Decision-Making. The CALFED proposal recommends a nine member peer-review committee supported by CUWCC technical staff to make certification decisions. CUWCC membership is divided into three groups. Group 1 consists of urban water suppliers. Group 2 consists of environmental interest groups. Group 3 includes all other signatories. Only Groups 1 and 2 signatories can vote within the CUWCC. The Compliance Review Committee CALFED is proposing would consist of three Group 1 representatives (and three alternates), three Group 2 representatives (and three alternates), and three members-at-large (and three alternates). The respective memberships of Groups 1 and 2 would elect Group 1 and 2 committee members and alternates. The Group 1 and 2 committee members would then select representatives and alternates for the members-at-large positions. DWR, USBR, and SWRCB would each appoint one ex-officio, non-voting member to the committee. Committee members would serve two-year terms. This proposed structure differs markedly from one of the earlier stakeholder proposals, which recommended a state legislative orgubernatorial appointment process. The merits of both approaches are still under discussion.

Appealing Certification Decisions. CALFED is proposing a *de novo* appeals process that would allow water suppliers and Group 2 MOU signatories to appeal MOU compliance decisions made by the CUWCC. The appeals process would be administered outside of the CUWCC by a designated CALFED agency. Appeals would be required to meet specific criteria demonstrating either that relevant data, required by the MOU, that would have altered the certification outcome were not considered or were incorrectly interpreted, or certification review and decision-making protocols were not followed. Additional conditions to prevent opportunistic or strategic appeals will also be developed. *Water Supplier Compliance Designations.* Water suppliers complying with the MOU will receive a designation of Full Certification. A water supplier's designation will change from Full Certification to Conditional Certification following a first finding of non-compliance. This designation will last for 12 months. To change its designation back to Full Certification a water supplier must either (1) return to compliance or (2) adopt an CUWCC-approved compliance plan within 12 months. Failing to meet one or the other of these conditions will result in a change in designation from Conditional Certification to Suspended Certification. This designation will last for 6 months. To change its designation back to Conditional Certification a water supplier must either (1) return to compliance or (2) adopt an CUWCC-approved compliance plan within 6 months. Periods of suspension will be extended by six months following each review until the supplier returns to compliance or adopts an approved compliance plan.

Compliance Rewards. CALFED will propose rewards for continuous compliance with the MOU. These rewards may include (1) less frequent reviews, (2) preferential State Drought Bank access or terms, and (3) preferential access to or terms for water supply/treatment grants and loans. Discussion of appropriate incentive structures is on-going.

Noncompliance Penalties. CALFED will implement a set of noncompliance penalties to deter persistent noncompliance with the MOU. Water suppliers out of compliance with the MOU for 18 months or longer would be subject to noncompliance penalties. CALFED is proposing three levels of noncompliance penalties. The magnitude of the penalty will increase with each level. The first level, entailing public disclosure and a modest fine, would follow a change in designation from Conditional Certification to Suspended Certification. The second level, entailing public disclosure and a moderate fine, would follow two continuous Suspended Certification designations. The third level, entailing public disclosure, a substantial fine and

restricted access to CALFED water supply benefits, would follow three or more continuous Suspended Certification designations. In determining the amount of the monetary penalty imposed for each enforcement level, the designated CALFED agency would consider the nature, circumstances, extent, and gravity of the violation, and, with respect to the violator, any prior history of violations, and the degree of culpability, economic benefits or savings resulting from the violation. Funds collected from monetary penalties for noncompliance would be reinvested in urban conservation financial assistance programs administered by the WUE program. The designated enforcement agency may allow a water supplier to reduce the monetary penalties described by up to 100 percent by undertaking a supplemental water conservation project or investment in accordance with the Urban MOU and any applicable guidance documents. Discussion of the level and structure of monetary penalties and application of water-based sanctions is on-going.

Tier 1 Wholesaler Requirements: CALFED will support state legislation requiring Tier 1 Water Wholesalers to pass through water supply penalties targeted at individual retail agencies facing level three enforcement actions. [Note: Tier 1 wholesalers are wholesale water suppliers that receive water either directly from the Bay-Delta system or directly from the CVP or SWP.] CALFED will structure the certification program to ensure that regional water supply reliability cannot be jeopardized by the actions of individual retail water suppliers within a regional supply system. The CALFED certification document will also formalize current Tier 1 conservation efforts and request comparable efforts in the future.

In addition to an assurance mechanism focused on participation in the Urban MOU, CALFED will work to ensure that more urban suppliers comply with another water planning effort -- the Urban Water Management Planning Act (California Water Code Section 10610 et seq.). The State's Urban Water Management Planning Act requires urban water suppliers to prepare and adopt urban water management plans and update them every 5 years. Although efforts by several urban water suppliers have been adequate to meet general requirements under the Act, many suppliers fail to adequately address local water management issues or even to produce a complete plan. To improve the levels of compliance, CALFED will work with DWR in expanding DWR's plan evaluation efforts to include a certification process.

[DWR has expressed concern about certifying plans. DWR believes that its role as provider of assistance may be incompatible with a role as a certification entity. Given these concerns, another agency, such as the SWRCB, may need to certify urban water management plans.]

Existing DWR efforts to assist urban water suppliers with preparation and implementation of urban water management plans are expected to continue. However, CALFED will help expand DWR's efforts as necessary to ensure that lack of technical support does not impede preparation and implementation of effective plans.

CALFED will also work with the CUWCC, DWR, and USBR to develop effective technical support and financial incentive programs for local urban water suppliers. The intent of these programs will be to foster the highest possible level of conservation practices (above the MOU-specified level) implementation by providing technical and financial support to those programs that promise to provide the greatest CALFED benefits.

2.2.3 MANAGED WETLANDS WATER APPROACH

In addition to the broad categories of urban and agricultural water needs, there are important environmental needs for adequate water supplies. These needs include appropriate in-stream flows, where water is the environment that supports aquatic species and processes, as well as needs for water diverted from the system

to support a variety of public and private wetland areas such as national wildlife refuges and state wildlife areas. CALFED is examining both in-stream environmental water use and water diverted for environmental purposes. The in-stream environment is being addressed by the Program's Ecosystem Restoration Program, while policies related to efficient use of environmental diversions on managed wetlands are being examined in the context of the Water Use Efficiency Program.

Three CALFED agencies (the California Department of Fish and Game [DFG], Reclamation, and the U.S. Fish and Wildlife Service [USFWS]) have been working with the Grassland Resource Conservation District to develop an Interagency Coordinated Program for optimum water use planning for wetlands of the Central Valley. A task force representing these entities has recommended a program that includes EWMPs for refuges and wetland areas of the valley. The task force report is now being reviewed by the sponsoring agencies. CALFED's approach to diverted water efficiency will hinge on finalizing and implementing the Interagency Coordinated Program.

2.2.4 WATER RECYCLING APPROACH

Water recycling provides a safe, reliable and locally controlled water supply. Tertiary treated, disinfected recycled water is permitted for all non-potable uses in California through Title 22, Division 4, Chapter 3 of the California Code of Regulations. Moreover, under specific conditions, advanced treated recycled water can be used to augment groundwater or surface drinking water sources. Advanced treated recycled water is presently under consideration for regulation in groundwater applications.

Recycled water supplies are projected to grow. In 1995, DWR conducted a "Survey of Water Recycling Potential" to help identify and quantify recycling plans. The survey identified actual recycling of over 450 TAF annually and projected recycling of 1.49 MAF annually by 2020. The WateReuse Association of California, in its 1993 Survey of Water Recycling Potential, estimated the total wastewater flow to the ocean and other saline water bodies to be 3 MAF.

Despite the potential supply available for recycling, local agency implementation of water recycling projects typically has fallen short of plans. For example, although the WateReuse Association's 1993 survey reported local agency plans to reuse over 650 TAF of recycled water by 1995, the DWR survey reported total reuse of only over 450 TAF. CALFED's approach to water recycling is to identify and resolve barriers that have prevented local entities from implementing recycled water projects. Where appropriate, attention will be focused on overcoming technical and public perception barriers to water recycling.

The approach to water recycling will include water recycling feasibility planning as part of the urban conservation certification effort (see Section 2.2.2, "Urban Water Use Efficiency Approach" above). Presently, all urban water agencies that are required to prepare Urban Water Management Plans under California Water Code Section 10610 *et seq.* also must prepare a water recycling feasibility plan as part of the process (Cal. Water Code Section 10633). CALFED will help urban water suppliers comply with these regulations by assisting local and regional agencies with preparation of water recycling feasibility plans (that meet the requirements of the Urban Water Management Planning Act).

Assistance with feasibility planning will include providing a guidebook and evaluation-decision software to help local and regional agencies more easily and uniformly assess the economic feasibility of water recycling projects and develop a financing plan. In addition, CALFED agencies will make staff available for further feasibility planning assistance and will provide in-kind technical and planning services to regional-scale

projects, such as the Bay Area Regional Water Recycling Program and the Southern California Comprehensive Water Reclamation and Reuse Study. (See "6.3.1 Regional Water Recycling Studies.")

CALFED will also work with local and regional agencies and other stakeholders on a best management practice for water recycling that would apply to water suppliers and wastewater utilities. Moreover, CALFED feasibility planning assistance will include identifying and encouraging opportunities for water suppliers and wastewater utilities to partner in regional projects that provide opportunities to: transfer recycled water from areas of excess supply to areas of excess demand, identify regional seasonal storage opportunities, and regional brine line feasibility.

In addition to feasibility planning assistance, CALFED will provide financial incentives to encourage local and regional recycling projects that reduce demand for diversions from the Bay-Delta system, provide regional supply reliability benefits, and improve the water quality of return flows or enhance wetlands. SWRCB, DWR, and Reclamation have programs that fund recycled water projects. These programs will continue. However, to augment existing programs and help assure California achieves water recycling potential, CALFED will work with a focus group to develop an incentive program that more closely fits the objectives and time line of CALFED Stage 1 actions. CALFED will work with representatives from the WateReuse Association, CUWA, CUWCC, and the Environmental Water Caucus to investigate alternative approaches for providing financial assistance and develop a CALFED water recycling incentive program. A few local water agencies have developed processes for providing financial support for recycled water projects in their service areas, and one or a combination of these processes (setting a standard unit rate of payment based on avoided costs, holding a bidding process similar to that used by electric utilities, or administering targeted grants/loans) may be practicable from a statewide perspective. The focus group will assist CALFED with developing a process CALFED can implement efficiently and effectively. The CALFED water recycling incentive program will then be implemented during the first year of Stage 1.

2.3 IMPLEMENTATION

2.3.1 STAGE 1 ACTIONS

The CALFED water use efficiency element is designed to accelerate the implementation of cost-effective actions to conserve and recycle water throughout the State in order to increase water supplies available for beneficial uses. The major components of the program are: 1) support ongoing urban and agricultural sector processes for certifying and endorsing local agency implementation of cost-effective efficiency measures; 2) provide technical and planning assistance to local agencies and districts developing and implementing water use efficiency measures; and 3) institute a competitive grant/loan incentive program to encourage water use efficiency investments in the urban and agricultural sectors.

- Expand Existing State and Federal Agricultural Water Conservation Programs to Support On Farm and District Efforts - Expand State and Federal programs (DWR, USBR, USFWS, DFG, DHS, NRCS, and SWRCB) to provide technical and planning assistance to local agencies and districts in support of local and regional conservation and recycling programs.

- Expand Existing State and Federal Conservation Programs to Support Urban Water Purveyor Efforts - Expand State and Federal programs (DWR, USBR, USFWS, DFG, DHS, and SWRCB) to provide technical and planning assistance in support of conservation and recycling programs.

- Agricultural Water Management Council (AWMC) Evaluation of Agricultural Water Management Plans - Utilize the AB 3616 AWMC to evaluate and endorse plans to implement cost-effective water management practices by agricultural districts. Identify and secure ongoing funding sources for AWMC and its members seeking to actively participate in the development, review, and implementation of these plans.

- Develop Urban Water Management Plan Certification Process - Select an agency to act as certifying entity, obtain legislative authority, carry out public process to prepare regulations, implement program.

- Implement Urban BMP Certification Process - Implement a process for certification of water suppliers' compliance with terms of the Urban Memorandum of Understanding (MOU) with respect to analysis and implementation of BMP's for urban water conservation. Provide funding support for the California Urban Water Conservation Council to carry out this function.

- Prepare a program implementation plan, including a proposed organizational structure consistent with the overall CALFED governance structure, for an competitive grant/loan incentive program for water use efficiency by December 2000. This will include:

    - Incentives in the agricultural sector that will consider several factors, including: (i) potential for reducing irrecoverable water losses; (ii) potential for attaining environmental and/or water quality benefits from water use efficiency measures which result in reduced diversions; (iii) regional variation in water management options and opportunities; (iv) availability and cost of alternative water supplies; and (v) whether the recipient area experiences recurrent water shortages due to regulatory or hydrological restrictions. Many of these factors are included in the Quantifiable Objectives for Agricultural Water Use Efficiency, and as such, the Quantifiable Objectives will be an important component of the agricultural incentive criteria.

    - Incentives in the urban sector will assist in identifying and implementing urban water conservation measures that are supplemental to BMP's in the Urban MOU process and are cost effective from a statewide perspective.

    - Incentives for water recycling in the urban and agricultural areas.

    - The plan will include annual reporting and evaluation mechanisms to gauge effectiveness of the program.

- Refuge Water Management - Finalize and implement the methodology for refuge water management which was described in the June 1998 "Interagency Coordinated Program for Wetland Water Use Plan, Central Valley, California."

- Research effort to establish appropriate reference conditions for evaluating program progress, and to identify improved methods for water use efficiency.

- Assess the Need for Additional Water Rights Protections - After consultation with CALFED agencies, the Legislature and stakeholders, evaluate the need for additional state regulations or legislation providing protection for water rights holders who have implemented water use efficiency measures and subsequently transferred water to other beneficial uses.

- Water Measurement - Develop, after consultation with CALFED agencies, the Legislature, and stakeholders, state legislation that requires appropriate measurement of water use for all water users in California.

- Create Public Advisory Committee - Create public advisory committee to advise State and Federal agencies on structure and implementation of assistance programs, and to coordinate State, Federal, regional and local efforts for maximum effectiveness of program expenditures.

2.3.2 ASSURANCES

Assurances will play a critical role in the Water Use Efficiency Program. The assurance mechanisms are structured to ensure that urban and agricultural water users and water suppliers implement the appropriate efficiency measures. As a prerequisite to obtaining CALFED Program benefits (for example, participating as a buyer in a water transfer; receiving water from a drought water bank; or receiving water made available solely because of supply enhancements such as new, expanded, or reoperated facilities) water suppliers will need to show that they are in compliance with the applicable urban or agricultural council agreements and applicable state law. This requirement will result in careful analysis and implementation of cost-effective conservation measures identified in those agreements.

A high level of water use efficiency also is expected to be required as a condition for permitting of any new surface water storage projects. Widespread demonstration of efficient use by local water suppliers and irrigation districts will be a prerequisite to CALFED implementation of new storage projects.

Local water suppliers will rely on CALFED agencies to provide a high level of technical and financial assistance to support local conservation and recycling efforts. Adequate funding for assistance programs will be an important assurance for local agencies. CALFED's initial Stage 1 cost estimate for state and federal financial assistance is $700 million, which may be increased as the program is further refined.

Economic analyses are under way that will compare water use efficiency options (including conservation, recycling, and transfers) and new facilities, and identify least-cost ways of meeting CALFED objectives. These analyses are expected to better define the mix of demand management and water supply options and

water supplies from new facilities. CALFED will work with stakeholders on technical and implementation issues as these analyses proceed.

In addition, CALFED will develop, after consultation with CALFED agencies, the Legislature, and stakeholders, state legislation that requires appropriate measurement of water use for all water users in California. In developing this legislation, important technical and stakeholder issues will be addressed to define "appropriate measurement," which is expected to vary by region. Aspects of this definition include the nature of regional differences, appropriate point of measurement, and feasible level of precision.

The CALFED Urban Certification process (Section 2.2.2) proposes additional consequences for inadequate adoption of Water Use Efficiency measures, including monetary fines and water-based sanctions. Through the Agricultural Strategic Plan, CALFED staff will consider agency and stakeholder viewpoints in crafting appropriate additional and as yet undetermined consequences for non-compliance of agricultural water use efficiency measures.

2.3.3 DATA GATHERING, MONITORING AND FOCUSED RESEARCH

CALFED agencies will carry out a coordinated program to gather better information on water use, identify opportunities to improve water use efficiency, and measure the effectiveness of conservation and recycling practices. This effort will include direct activities by CALFED agencies, assistance to the CUWCC and the AWMC, and assistance to local water and regional water agencies in their efforts to quantify the savings and new water supply from water use efficiency measures.

Examples of activities that may be carried out by CALFED agencies under this program include developing better information on:

- Basin efficiencies and water balances for the Bay-Delta system and subregions, and the extent of reuse within basins.
- The identification and quantification of water quality and ecosystem improvements related to changes in local water management.
- The areal extent of urban landscaped area.
- The measurement of landscape water use.
- The distribution and useful life of water-using appliances and fixtures.
- The distribution of irrigation technology by type, soil condition, and crop.
- Quantification of evaporation versus transpiration and understanding their relationship.
- Measurement of on-farm efficiency and changes resulting from efficiency improvements.
- Understanding of per-capita water use and how it is affected by implementation of conservation and recycling measures.
- New efficiency technologies and their potential to affect water use.

- Interactions among and program policies or regulations of DHS, SWRCB, the Regional Water Quality Control Boards, and the California Plumbing Standards Commission
- The economics of water recycling
- Existing statewide infrastructure available for the treatment, transport, and storage of recycled water
- Effects of source water quality on the costs of producing recycled water

CALFED agency support for the CUWCC and the AWMC will help these organizations measure the effectiveness of BMPs and EWMPs. DWR support for mobile irrigation laboratories will result in better measurement of on-farm efficiency and better information on trends in irrigation practices and equipment. Technical assistance to local water and regional water agencies will help enable them to measure the results of implementing water use efficiency measures.

2.3.4 PROGRAM LINKAGES

Important linkages exist between water use efficiency and other components of a comprehensive long-term solution to resource problems of the Bay-Delta. Some of these linkages include:

- ***Storage and Delta conveyance*** - The cost of new storage and conveyance projects will help set the marginal cost of new supplies for many water suppliers. This, in turn, will influence the cost effectiveness of efficiency measures. If new supplies are expensive, more efficiency measures will be cost effective.
- ***Delta transfer capacity*** - The increase in physical capacity to transfer water across the Delta that may result from new or improved conveyance will be important in determining the maximum extent of water transfers across the Delta.
- ***Water quality*** - Increases in water use efficiency can reduce the amount of return flow to streams and creeks in the Bay-Delta system. Efficiency actions also may change water quality. This may improve instream water quality by reducing the return flow of salts, sediments, organic carbon, selenium, or metals, or other substances.
- ***Ecosystem quality*** - Increased emphasis on efficiency measures will improve water quality, timing, and instream flows—which will reduce the level of future impacts on aquatic organisms.
- ***Financing*** - How the costs of a Bay-Delta solution are apportioned will significantly affect the cost effectiveness of efficiency measures. To the extent that the costs of actions such as providing water for ecosystem restoration are reflected in the price that agencies and consumers pay for water, efficiency measures will be made more attractive.
- ***Adaptive Management*** - The water use efficiency element will be reevaluated periodically and if necessary adjusted to reflect changes in our understanding of water use efficiency and related Program elements such as water quality, ecosystem restoration, and water supply reliability. This will be consistent with CALFED's adaptive management approach. This allows the CALFED Program

to begin investing water use efficiency actions while estimates of future conservation potentials are being refined.

2.3.5 GOVERNANCE

CALFED is currently developing the basis for interim and long-term governance structures for its program implementation. Please refer to the Governance section of the Implementation Plan for a complete description of Water Use Efficiency governance.